

Leadless pacemaker

***Prelims** - Current events of National and International Importance | General Science.*

Why in News?

Recently, Venkateshwara Hospital, Chennai, highlighted the successful implantation of a leadless pacemaker in an elderly patient.

- **Need** - Pacemaker **eliminates the need for leads** (wires) that connect to the heart, which **reduces the risk of infection** and complications associated with traditional pacemakers.
- It helps to reduce patient discomfort, infections, device complications, and dysfunction.
- It will benefit elderly patients who with multiple comorbidities, a higher risk of infection and bleeding.
- **Leadless pacemaker** - It is a modern, small device that provides **electrical stimulation to the heart.**
- It does not have wires or a large battery and doesn't need a surgical pocket for its implantation.
- **Size and shape** - It are **3cm in length, shaped like a bullet,** and is **minuscule,** compared to a conventional pacemaker, which has the size of a matchbox.
- **Components** - The battery and the electrical components are all located in this **bullet-shaped capsule.**
- **Implantation** - It is implanted directly into the heart through a vein in the leg using a catheter. There is no surgical pocket; the patient can be discharged the very next day.
- **Advantages** - It is easily removable and longer battery life, 16-17 years, compared to a conventional pacemaker.
- **Limitations** - It costs around 15 lakhs, three times more than conventional pacemakers; many patients may not be able to afford it.
- A total of 1,300 leadless pacemaker implantations has been performed in India since its introduction in 2018.

Conventional Pacemaker

- It has been used over the past decades in millions of patients.
- It consists of a battery or pulse generator and one or two long wires or leads, which are placed inside the chambers of the heart through a vein under the collarbone.
- The leads are connected to the battery, which is inserted inside a surgical pocket made by making a cut or incision under the skin below the collarbone.
- It can be associated with risks like bleeding, infection, and pus formation in the pocket.
- Longer healing periods and such complications may be higher in the elderly, frail, and diabetic patients.

Reference

[The Indian Express| Leadless Pacemaker](#)

